

2009 Florida A&M University Research Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

Florida is one of the fastest growing states within the United States, currently ranking fourth in population growth after California, New York and Texas. Most of this growth is taking place in the major urban areas of the state. However, agriculture plays a very significant role in Florida's economy and remains a viable force to-date. Florida agriculture is diverse as well as unique in nature in terms of farm size, crops, and economic investments. It represents a complex group of industries that produce a wide variety of food crops, livestock, vegetables, fruits, ornamental horticulture, forestry, aquaculture, and related agricultural commodities. The changing demographics of the state and the consequent needs of our stakeholders dictate that we develop appropriate research programs which would address such issues. The small farmer in Florida is experiencing difficulties because of the rising cost of inputs, marginal profits, land costs and the loss of land to development. Recent trends in the overall economy of the nation have placed many small farmers in a situation of extreme economic stress. Florida A&M University's (FAMU) research programs are particularly geared for applicability to smaller part-time or limited resource farmers. Sixty percent of Florida's farms fit the definition of a "small farm," which makes FAMU's mission particularly crucial in enhancing the overall economy of the state. Special attention was paid to the needs of small farmers in the proposed Plan of Work for Florida A&M University for the period 2009-2013.

The Plan of Work was prepared after receiving inputs from various sources through surveys, interviews, and direct contacts with stakeholders. The identified needs were matched with the scientific expertise available at FAMU, plans were developed and the available resources were then appropriated accordingly. The major areas of need included: Viticulture and Small Fruits, Water Quality and Quantity, Control of Pests (especially, biological control), Alternative Enterprises and Niche Crops, and certain Rural Development Issues. Further details are provided for each of these planned programs in this document.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	19.0
2010	0.0	0.0	0.0	19.0
2011	0.0	0.0	0.0	19.0
2012	0.0	0.0	0.0	19.0
2013	0.0	0.0	0.0	19.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- External University Panel
- External Non-University Panel
- Expert Peer Review
- Other (Review by Stakeholders)

2. Brief Explanation

Florida A&M University has a well established process in place to review and monitor the quality and the accountability of research program. In addition to the reviewers mentioned above, the proposed research will be monitored through annual evaluation of

faculty's planned program; potential impact on stakeholders; presentation and publication of scientific findings; annual report of accomplishments; and, periodic CSREES reviews.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Florida basically has three distinct agroclimatic regions. The Southern part of Florida produces ornamentals, nursery crops, vegetables, tropical fruits and aquaculture commodities; the Central part has extensive citrus crops, animals, row crops and small enterprises; the Northwest Panhandle area, where Florida A&M University is located, has farmers involved in a mix of enterprises including: cattle, goats, tomatoes, peppers, grapes, peanuts and other specialty crops. Therefore, the needs of stakeholders are different for these three regions. Since most of the farmers in the Panhandle area are small producers, FAMU concentrates on their needs and through the proposed plan will try to address their concerns. The main issue is to enhance the economic returns for producers in this area. Research on this aspect will include: Grape production, meat goats, tomato and peppers, and other alternate crops. Water quality and environmental issues are major concerns and so is the quality of life for rural residents. Hence, planned research programs address these issues.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

Florida A&M University, an 1890 Land-Grant university, has traditionally worked with the under-served and under-represented groups involved in agriculture and rural development. FAMU's Research Programs are developed in close association with its extension component. The planned programs are geared toward meeting the identified needs of small/limited resource farmers. Research is proposed for developing information on niche crops, alternate enterprises and value-added products, which would enhance the economic returns for small producers. The proposed research on rural issues will help in identifying the needs of under-served, elderly and other rural residents and the ways in which local and state agencies are meeting such needs.

3. How will the planned programs describe the expected outcomes and impacts?

Expected outcomes of the planned program include: greater profitability and productivity for North Florida agricultural producers, better crop production and management information, better animal production and management information, reduced costs, enhanced environmental stewardship, reduced use of chemicals (fertilizers and pesticides) and further integration of research, teaching and extension programs.

Potential Impacts include: Better informed grapes and vegetable growers, more acreage of grapes and vegetables, healthy animals and reduced cost of production, adoption of "Best Management Practices," availability of new niche crops, novel biological control agents, better environmental conditions and well trained undergraduate and graduate students.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

The planned program will be annually reviewed to redirect and realign the efforts to ensure that it remains effective and efficient. Available resources (federal, state, private), will be allocated based on the identified needs and priorities. By incorporating the stakeholder issues and implementing the recommendations made by the program advisory council, it is evident that the resources will be used where they are needed. Also, the four research centers within the Agricultural Research Program (at FAMU) bring a number of scientists together to address a certain issue. This tends to be more effective in solving problems.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Survey specifically with non-traditional groups
- Targeted invitation to traditional stakeholder groups
- Other (Contact traditional under -served clientele)
- Targeted invitation to non-traditional stakeholder groups
- Use of media to announce public meetings and listening sessions
- Survey of traditional stakeholder groups

Brief explanation.

Input from stakeholders will be sought from multiple sources and at different levels. Various stakeholder groups such as: Florida Grape Growers Association, Florida Meat Producers, Farm Bureau, Florida Fruit and Vegetable Association, Florida Nursery

Growers Association, CARET representatives, Florida Water Management District representatives, Florida Mosquito Control Association and others will be contacted and encouraged to respond to a formal survey requesting their input to identify needed research. Follow-up discussions will be held concerning the existing research program priorities and how Florida A&M University's research programs are and will be addressing stakeholder's needs. The Research Advisory Group will provide input regarding the relevancy of the program. A show-and-tell event (Research Forum) will be held on the campus to encourage stakeholder participation and facilitate interaction with researchers. The College will also hold several other public events during the year to gather information from stakeholders. Each of the planned program areas have established advisory councils to help them develop, implement and monitor research.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Needs Assessments
- Use Advisory Committees
- Use Surveys
- Open Listening Sessions

Brief explanation.

Attempts will be made to include as many diverse groups as possible. Special attention will be paid to the under-served clientele such as low income farmers, minority groups and small-scale producers. Field days will be very useful in identifying the stakeholder groups. Input will also be sought from the extension workers in identifying the stakeholders. Listening sessions at commodity group meetings will be helpful in formulating needs assessments.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Survey of traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)
- Meeting with traditional Stakeholder groups
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Other (Through county extension agents)

Brief explanation

Stakeholder input will be collected throughout the year in informal and formal meetings and a College -wide strategic plan. Meetings will be held on the campus where research results will be presented and stakeholders' input will be requested.

3. A statement of how the input will be considered

- Other (College -wide strategic plan)
- Redirect Research Programs
- In the Budget Process
- In the Action Plans
- To Identify Emerging Issues
- In the Staff Hiring Process
- To Set Priorities

Brief explanation.

Input received from stakeholder groups will be incorporated into individual planned programs as well as the total Plan of Work. Research priorities and specific recommendations/action items will be developed from the proceedings of the college advisory council. Planned programs will be designed to address the identified needs and the budgets will be prepared accordingly. Seed money will be provided for the identified emerging issues.

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Viticulture and Small Fruit Research
2	Water Quality Research
3	Biological Control of Insect Pests
4	Statewide Goat Research Program
5	Small Farm, Value-Added Enterprises and Rural Families

V(A). Planned Program (Summary)**Program #1****1. Name of the Planned Program**

Viticulture and Small Fruit Research

2. Brief summary about Planned Program

To address the needs of Florida's grape growers, Florida A&M University established a Center for Viticulture and Small Fruit Research in 1978. The Center conducts research and provides service and support that will enable the viticulture industry in Florida become a viable enterprise. Ongoing research projects range from identifying the genetic markers of important viticultural characteristics for developing disease tolerant grape cultivars to evaluating the cultural practices for efficient vineyard management. Another effort is the development of a seedless muscadine with large berries and good quality fruit that will have edible skin and good disease tolerance for making wine, juice, and jelly. Close cooperation and working relationship exist between the program and the stakeholders, i.e., the grape growers, who are the final beneficiaries of the research. Planned program is geared towards developing new and improved muscadine grape cultivars and small fruits such as blackberries, raspberries and others.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms				25%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants				25%
205	Plant Management Systems				50%
	Total				100%

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The Florida Legislature identified viticulture as an underdeveloped industry with great economic potential within the state. The grape industry in Florida has been hampered by the fruit quality from the currently available commercial varieties. Other major problem is the susceptibility of grapes to the Pierce Disease. There is a need to improve the quality of Florida grapes(muscadines) in terms of disease and pest resistance, seedlessness and development of fresh as well as wine grapes. To address the needs of Florida's Grape Industry, Florida A&M University established the Center for Viticulture and Small Fruit Research in 1978. The Center has three prong approach, i.e., research, public service and training of students at graduate and undergraduate levels.

2. Scope of the Program

- Integrated Research and Extension
- In-State Research
- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The Florida Legislature provides an annual appropriation to the Center to conduct research and extension work in grapes. Additional funds are allocated through the Evans-Allen Program. The Center has developed a number of research projects with the assistance of the Florida Viticultural Advisory Council and Florida Grape Growers. The Center has well-established vineyards and four laboratories where researchers work on grape genomics and breeding, grape biotechnology, grape product development and small fruit evaluation. Consumption of Florida grapes and wines is on the rise, so is the acreage and number of wineries. With increasing population of the state, this trend will continue. Also, many of the citrus producers, especially in the north central part of Florida, are slowly moving towards other enterprises such as grapes. The major hindrances in grape production in Florida include: availability of seedless muscadine cultivars, appeal and preference for Florida muscadine grapes and grape products, initial start up costs for establishing a vineyard and lack of information on vineyard management practices. The proposed research program at Florida A&M University will address these problems through several ongoing studies.

2. Ultimate goal(s) of this Program

- Develop new and improved grape cultivars for Florida's grape growers.
- Develop seedless muscadine grape varieties.
- Promote the marketability of Florida grapes and value-added products.
- Explore the suitability of small fruit crops (Blackberries, Raspberries, etc.) for north Florida.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	6.0
2010	0.0	0.0	0.0	6.0
2011	0.0	0.0	0.0	6.0
2012	0.0	0.0	0.0	6.0
2013	0.0	0.0	0.0	6.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research Projects and studies, Research Reports and Publications, Presentations, Graduate Student Training, Research workshops, Growers Meetings and Field Days, Public at-large field day, Participation in Florida Grape Growers Association, Interface with the Florida Department of Agriculture and Consumer Services

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Group Discussion ● Workshop ● Other 1 (Field Days) 	<ul style="list-style-type: none"> ● Public Service Announcement ● Web sites ● Newsletters

- Education Class
- Demonstrations

3. Description of targeted audience

Grape growers in general, Florida grape growers in particular, Small fruit producers, Small acreage owners, Consumers, Extension workers, Plant breeders and biotechnologists, grape processors and wine makers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	200	200	100	50
2010	300	200	100	50
2011	400	200	100	50
2012	400	200	100	50
2013	400	200	100	50

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2009 :1 2010 :1 2011 :1 2012 :1 2013 :1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2009	6	3	9
2010	7	4	11
2011	7	4	11
2012	7	4	11
2013	8	3	11

V(H). State Defined Outputs

1. Output Target

- Research and Extension publications; Grant proposals submitted and funded; Dissemination of results to stakeholders; Training of graduate and undergraduate students. Increasing the number of grape growers in Florida over the 2007 base- long term measure

2009 :20 2010 :30 2011 :40 2012 :50 2013 :50

V(I). State Defined Outcome

O. No	Outcome Name
1	Greater profitability and competitiveness; Increased value of grape commodities; Improved cooperation between the industry, state and federal agencies resulting in transfer of technology that will lead to growth and higher economic returns for Florida Grape Growers; Increased acreage of grapes for fresh fruit and processing; Better trained graduate and undergraduate students in viticulture and plant biotechnology.

Outcome #1**1. Outcome Target**

Greater profitability and competitiveness; Increased value of grape commodities; Improved cooperation between the industry, state and federal agencies resulting in transfer of technology that will lead to growth and higher economic returns for Florida Grape Growers; Increased acreage of grapes for fresh fruit and processing; Better trained graduate and undergraduate students in viticulture and plant biotechnology.

2. Outcome Type : Change in Knowledge Outcome Measure

2009 :50

2010 : 50

2011 : 60

2012 :70

2013 : 70

3. Associated Institute Type(s)

- 1890 Research

4. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Public Policy changes
- Economy
- Competing Programatic Challenges
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)

Description

Main external factors would be: infestation of insect/disease/pests; unfavorable weather conditions, declining demand for the products.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- Time series (multiple points before and after program)
- Before-After (before and after program)
- After Only (post program)
- During (during program)

Description

The evaluation studies will be conducted during and after the implementation of planned program. Progress made on each of the goals will be determined annually and appropriate modifications in the plan will be made to achieve proposed goals at the end of the plan.

2. Data Collection Methods

- Case Study
- Mail
- Structured
- Telephone
- Sampling

Description

The data collection will depend on the type of the study. The experimental studies will follow standard statistical procedures. The marketing and consumer studies will employ survey techniques. Yield related studies will depend on the sampling.

V(A). Planned Program (Summary)**Program #2****1. Name of the Planned Program**

Water Quality Research

2. Brief summary about Planned Program

The protection and improvement of our water resources is one of the most pressing national priorities of the 21st century. This is particularly true in Florida, where about one-third of the land is wetland at different times of the year, and most of the drinking water comes from shallow underground aquifers. Hence, the drinking water supply is highly vulnerable to agricultural as well as urban runoff. With the increasing population in the state, there is much demand for fresh water from agriculture, industry and public-at-large. Both, the quality and the quantity of water need to be protected. Agriculture uses almost 70 percent of all freshwater consumed within the state. It also poses major threat to the quality of water because of nutrient runoff. There is a great need in the state to improve the understanding of the water usage and to research the intricate relationship between agricultural practices, land use, wetlands and water quality. Florida A&M University established a Center for Water Quality in 1995 to address these issues. Since then, air quality area has also been added to the center. Active support has been received from two USDA agencies (Forest Service and Natural Resources Conservation Service), in addition to CSREES.

3. Program existence : Mature (More than five years)**4. Program duration :** Long-Term (More than five years)**5. Expending formula funds or state-matching funds :** Yes**6. Expending other than formula funds or state-matching funds :** Yes**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water				75%
112	Watershed Protection and Management				25%
	Total				100%

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Florida, one of the fastest growing states in the nation is faced with major challenges in the protection and enhancement of its water resources. As the population increases, so is the demand for water supply and wastewater treatment. More than one-half of freshwater used in the state comes from underground aquifers. Since most of these aquifers are quite shallow (10-12 ft below the surface), potential sources of water contamination are many. Surface water bodies including lakes, streams, rivers, irrigation canals and wetlands are equally susceptible to pollution by agricultural activities, animal waste disposal, landfill seepage and aquatic weeds. The Center for Water and Air Quality at Florida A&M University is engaged in addressing many of these issues. The Center Advisory Council consisting of stakeholders and representatives from state, local and federal agencies have provided input for planning research activities undertaken by the center. The center priorities include: nutrient management to reduce runoff losses, protection of Florida wetlands, monitoring water quality in various aquatic systems, and phytoremediation of hazardous chemicals in water.

2. Scope of the Program

- Multistate Research
- In-State Research
- Integrated Research and Extension
- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Florida is a leading producer of a number of agricultural crops, including citrus and vegetables; application of fertilizers to these crops can result in the pollution of ground water by excess nutrients. In addition, waste from livestock operations can cause runoff into groundwater. Researchers plan to study the relationships between agricultural practices, land-use, wetlands and water quality, and develop best management practices to reduce pollution from all agricultural sources. The Center for Water Quality at FAMU will continue to receive additional funding from the two USDA agencies, Forest Service and Natural Resource Conservation Service to address some of these issues. The Water Analysis Laboratory (FAMU) which was set up 4 years back is fully functional and will continue to provide the needed technical support for research in this area.

2. Ultimate goal(s) of this Program

- Protect and enhance the quality and the quantity of Florida's water.
- Study efficient nutrient management and reduce nutrient runoff into water bodies.
- Protect Florida's wetland through better understanding of nutrient cycling.
- Develop biomonitoring methods to study water quality.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	6.0
2010	0.0	0.0	0.0	6.0
2011	0.0	0.0	0.0	6.0
2012	0.0	0.0	0.0	6.0
2013	0.0	0.0	0.0	6.0

V(F). Planned Program (Activity)**1. Activity for the Program**

Close coordination will be established with the Florida Department of Environmental Protection, US Forest Service and the Natural Resource Conservation Service in designing and executing research to study water quality issues within the state. Most of the research sites will be located in north Florida. A regional water quality symposium will be held in 2009 to bring 1890 scientists and others together to discuss issues related to aquatic systems. Research results will be disseminated through publications and presentations at the scientific meetings. Also, major involvement of extension agents and graduate and undergraduate students will be sought.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Education Class ● Demonstrations ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Web sites ● Newsletters

3. Description of targeted audience

Small and limited resource farmers, natural resources extension specialists, environmental protection personnel, aquatic biology scientists, wetland researchers, local, state and federal agencies

V(G). Planned Program (Outputs)**1. Standard output measures**

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	200	100	50	50
2010	200	100	100	50
2011	225	100	100	50
2012	250	100	100	50
2013	250	100	100	50

2. (Standard Research Target) Number of Patent Applications Submitted**Expected Patent Applications**

2009 :1 2010 :1 2011 :0 2012 :0 2013 :1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2009	5	3	8
2010	5	3	8
2011	6	3	9
2012	6	3	9
2013	7	3	10

V(H). State Defined Outputs**1. Output Target**

- Research and extension-type publications Grant Proposals Submitted and Funded Dissemination of Results to Stakeholders Training of Graduate and Undergraduate Students

2009 :50 2010 :50 2011 :60 2012 :60 2013 :60

V(I). State Defined Outcome

O. No	Outcome Name
1	Reduction in the amount of agriculture runoff into groundwater; Adoption of program recommendations for improving water quality; Preservation of Florida's water resources;Improved environmental stewardship; Better understanding of aquatic fauna; Well-trained graduate and undergraduate students in soil and water sciences.

Outcome #1

1. Outcome Target

Reduction in the amount of agriculture runoff into groundwater; Adoption of program recommendations for improving water quality; Preservation of Florida's water resources;Improved environmental stewardship; Better understanding of aquatic fauna; Well-trained graduate and undergraduate students in soil and water sciences.

2. Outcome Type : Change in Knowledge Outcome Measure

2009 :40 **2010 : 50** **2011 : 50** **2012 :60** **2013 : 60**

3. Associated Institute Type(s)

- 1890 Research

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Public Policy changes
- Competing Programatic Challenges
- Natural Disasters (drought,weather extremes,etc.)

Description

The Water Quality Program being an environmentally sensitive program may be affected by several external factors. The chief among them: changes in land-use pattern, state environmental regulations, climatic conditions including extreme shifts due to hurricanes, draining of wetlands, etc.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Before-After (before and after program)
- Time series (multiple points before and after program)

Description

Evaluation of ongoing planned studies will be conducted during and after the implementation of the program. Before-After and multiple points will also be used to determine the effectiveness of the planned program. Final evaluation will be completed at the end of the studies.

2. Data Collection Methods

- Observation
- Mail
- Other (Experimental Studies)
- Structured
- Sampling

Description

Data will be collected through well designed research studies and experiments. Appropriate statistical methods will be used in implementing and analysing the results of the study.

V(A). Planned Program (Summary)

Program #3

1. Name of the Planned Program

Biological Control of Insect Pests

2. Brief summary about Planned Program

Florida has a warm humid climate, a diversity of natural ecosystems, and is one of the leading agricultural states. As a result, it is particularly vulnerable to wide variety of insect pests and weeds. While effective pest control is critical in all crop production systems, it is becoming increasingly clear that excessive reliance on chemical pesticides is not the answer. The need to adopt sustainable, less pesticide intensive pest control practices is evident. Biological control, or the control of pest species using natural enemies, is a prime component of sustainable agriculture. Planned program in this area will address issues related to biological control.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
215	Biological Control of Pests Affecting Plants				100%
	Total				100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

At the dawn of the new Millennium, the crop acreage under IPM was estimated to be far below the national commitment set under the USDA/EPA initiative to have 75 percent of total acreage under IPM by the year 2000 (GAO,2001). While the report elicited much debate, it is clear that the need for development of alternatives to chemical pesticides remain high. In organic farming systems, the challenges are even greater due to the stringent production requirements. In North Florida, vegetable production is an important activity and small farmers produce a range of vegetable crops. Many of them are converting to organic farming and are in need of viable biological control options. Biological control in its various forms is a key tool underpinning management efforts against the wide array of pests. A five-year research and development effort is proposed to overcome the technical and policy constraints to the increased application of biological control against economically important indigenous and non-indigenous pests. The Center for Biological Control at Florida A&M University , established in 1998, with a unique partnership between FAMU, ARS and APHIS will undertake the proposed work.

2. Scope of the Program

- Multistate Research
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The dynamics of insect populations and their progress towards pest status are often very complex and are influenced by a range of

abiotic and biotic factors. The proposed work increase awareness and understanding of the state and federal regulations, the International Guidelines for Export, Shipment, Import and Release of Biological Control Agents and Other beneficial organisms. The policy constraints part will emphasize the need for increased knowledge of the regulatory frameworks governing or influencing the implementation of biological control. The Center for Biological Control will continue to receive support from ARS and APHIS, in addition to funding through the Evans-Allen Program. ARS has placed three entomologists on the campus to work closely with the University scientists.

2. Ultimate goal(s) of this Program

The ultimate goal of this planned program is to develop environmentally benign, cost effective and commercially acceptable strategies for utilizing biological control agents against indigenous and non-indigenous pests.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	3.0
2010	0.0	0.0	0.0	3.0
2011	0.0	0.0	0.0	3.0
2012	0.0	0.0	0.0	3.0
2013	0.0	0.0	0.0	4.0

V(F). Planned Program (Activity)

1. Activity for the Program

Primary and secondary data will be collected in order to better understand the pest management constraints facing small scale farmers in North Florida. Data base will be developed by using questionnaire survey and semi-structured interviews with farmers. Research studies and experiments will be conducted to better understand biology of key pests and biological control agents. Follow up activities include: monitoring field persistence, host/pathogen interactions and the effectiveness of various agents. Field demonstrations will be set up for small scale farmers and organic producers. Research activities will be coordinated with extension field staff.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class ● Demonstrations ● Group Discussion 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● Public Service Announcement

3. Description of targeted audience

The target audience include: small-scale farmers, organic vegetable producers, organic gardeners, vegetable producers, extension workers and biological control scientists/entomologists

V(G). Planned Program (Outputs)**1. Standard output measures****Target for the number of persons(contacts) to be reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	150	100	50	50
2010	175	125	75	50
2011	175	125	75	50
2012	200	150	100	50
2013	200	150	100	50

2. (Standard Research Target) Number of Patent Applications Submitted**Expected Patent Applications****2009 :1****2010 :0****2011 : 1****2012 :0****2013 :0****3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2009	3	2	5
2010	3	2	5
2011	4	3	7
2012	4	3	7
2013	5	3	8

V(H). State Defined Outputs**1. Output Target**

- Identification of biological control agents against indigenous and non-indigenous pests. Development of effective and efficient IPM strategies. Research and extension publications. Training of graduate and undergraduate students

2009 :50**2010 :50****2011 : 60****2012 :60****2013 :60**

V(I). State Defined Outcome

O. No	Outcome Name
1	Better control of pest species using natural enemies; More efficient production and greater profitability; Efficient use of agricultural chemicals (pesticides) by producers; Development of better pest identification tools; Reduction in spread of invasive species; Well-trained graduate and undergraduate students in biological control research area.

Outcome #1**1. Outcome Target**

Better control of pest species using natural enemies; More efficient production and greater profitability; Efficient use of agricultural chemicals (pesticides) by producers; Development of better pest identification tools; Reduction in spread of invasive species; Well-trained graduate and undergraduate students in biological control research area.

2. Outcome Type : Change in Knowledge Outcome Measure

2009 :50

2010 : 75

2011 : 75

2012 :100

2013 : 100

3. Associated Institute Type(s)

- 1890 Research

4. Associated Knowledge Area(s)

- 215 - Biological Control of Pests Affecting Plants

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Public Policy changes
- Government Regulations
- Competing Programatic Challenges
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)

Description

The major external factors which may affect the outcomes of the planned program include: unfavorable weather conditions which may cause high infestation of insect pests, lack of effective biological control agents, prevalence of natural enemies of identified biological control agents, reduction in funding of current and planned research studies.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- During (during program)
- Before-After (before and after program)
- Time series (multiple points before and after program)

Description

The understanding and impact of the standard biological control practices on stakeholders, principally producers of agricultural commodities will be assessed through a survey. A before and after survey of vegetable and /or organic growers is planned. A research timetable along with measureable outcomes will help guide field and lab studies. The advisory council will evaluate the outcomes of research on an annual basis.

2. Data Collection Methods

- Sampling
- Mail
- Structured
- Observation

Description

The data will be collected through insect survey, monitoring and identification. Vegetable and organic production data will be collected by information obtained from the Florida Department of Agriculture and Consumer Services and the survey of producers. Biological control agents will be identified and cataloged.

V(A). Planned Program (Summary)**Program #4****1. Name of the Planned Program**

Statewide Goat Research Program

2. Brief summary about Planned Program

The future of the goat industry in Florida depends on the profitability and sustainability of goat enterprises, mostly undertaken by the small and limited resource farmers within the state. The raising of goats, as an alternative enterprise in farming systems can provide a profitable and sustainable source of income. However, production costs, the lack of a superior meat goat animal, herd health problems and a narrow market have been determined to be limiting factors in Florida's goat industry. The Statewide Goat Program at Florida A&M University was established to address these identified needs of the Florida goat producers. It has been a joint effort between FAMU Research and extension Programs, with several North Florida counties and the University of Florida/IFAS cooperating. The planned program will continue this effort through research, education and outreach to improve the competitive position of small goat producers in the state. Florida Department of Agriculture and Consumer Services is an active partner in this effort.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals				10%
302	Nutrient Utilization in Animals				10%
307	Animal Management Systems				30%
311	Animal Diseases				20%
502	New and Improved Food Products				10%
601	Economics of Agricultural Production and Farm Management				20%
	Total				100%

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

For the past twenty or so years, FAMU researchers have been supporting the economic development of north Florida's farmers through the exploration of non-traditional crop and livestock systems. One program that has done a great deal to help growers is the Statewide Goat Program. This program is designed to assist producers in developing a viable and sustainable meat goat industry. Research addresses critical issues in meat goat production systems, and provides experiential learning for students in small ruminant production. Planned programs will focus on the development of efficient feeding systems, breeding and management practices to improve the quality of goat herds for meat production, herd health management practices, and an organized marketing system to help producers sell their meat goats more efficiently and for a better economic return.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension
- In-State Research

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

The dissemination of information and the education of goat producers is an important component of the Statewide Meat Goat program. In the past, the program worked extensively with Florida "native woods" goats, but in recent years the research focus has moved toward an emphasis on imported Boer goats. These South African native goats are hardy, heavily muscled meat goats with many characteristics that have greatly enhanced the quality of local goat herds through careful breeding programs. The major cost associated with goat production has been the cost of drugs to keep the herd healthy. Through the proposed research, it is assumed that these costs will be reduced and the benefit will be transferred to the producers. Also, the market acceptability of goat products will increase with time.

2. Ultimate goal(s) of this Program

- Reduce production costs (mainly, feed and drugs) in raising meat goats
- Develop effective herd health plans for goats
- Identify alternative markets/strategies for goats and value-added goat meat products
- Provide research support for training extension workers and goat producers

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	2.0
2010	0.0	0.0	0.0	2.0
2011	0.0	0.0	0.0	2.0
2012	0.0	0.0	0.0	2.0
2013	0.0	0.0	0.0	2.0

V(F). Planned Program (Activity)**1. Activity for the Program**

The Statewide Goat Program is a truly integrated effort. Many activities will be planned to benefit stakeholders and others. These are: Goat Field days, workshops to train goat producers, research studies, field demonstrations, interaction with Florida Meat Goat Association, visits to producers' farms, developing simple publications, working with small and limited resource farmers and

helping them in establishing goat production units. Over the years, FAMU has established good rapport with various public and private organizations involved in this area and we plan to continue to build on it.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Workshop ● Demonstrations ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Newsletters ● Public Service Announcement ● Web sites

3. Description of targeted audience

Small and limited resource farmers, minority farmers, extension workers, goat producers, herd-health professionals, meat goat processors, animal scientists

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	250	200	50	100
2010	300	250	75	100
2011	300	250	75	100
2012	300	250	100	100
2013	300	250	100	100

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2009 :0

2010 :0

2011 :1

2012 :0

2013 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2009	1	3	4
2010	1	2	3
2011	1	3	4
2012	2	3	5
2013	2	2	4

V(H). State Defined Outputs

1. Output Target

- Research and Extension Publications Grant proposals submitted and funded Dissemination of results to stakeholders Training of graduate and undergraduate students

2009 :50	2010 :50	2011 :60	2012 :60	2013 :60
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V(I). State Defined Outcome

O. No	Outcome Name
1	More use of sustainable production practices; Reduction in feed and health costs; Enhanced marketable products and markets; Greater profitability and competitiveness; Well-trained graduate and undergraduate students.

Outcome #1**1. Outcome Target**

More use of sustainable production practices; Reduction in feed and health costs; Enhanced marketable products and markets; Greater profitability and competitiveness; Well-trained graduate and undergraduate students.

2. Outcome Type : Change in Condition Outcome Measure

2009 :40

2010 : 40

2011 : 40

2012 :50

2013 : 50

3. Associated Institute Type(s)

- 1890 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 502 - New and Improved Food Products
- 601 - Economics of Agricultural Production and Farm Management

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Populations changes (immigration,new cultural groupings,etc.)
- Economy
- Government Regulations

Description

The Statewide Goat Program operates throughout the State of Florida and assists small and limited resource farmers in increasing their incomes. Several external factors may affect: marketing conditions and demand for animals, feed and drug costs, food processing and safety regulations.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

The evaluation of this program will be done jointly with the Cooperative Extension Program, since many of the activities have been planned together. Evaluations will be done before and after, as well as during the studies, to determine the effectiveness of program delivery to small and limited resource farmers. Survey/questionnaire will be used at the Goat Producers Field Day and other meetings to see if research results are being followed and how effective they are. Extension workers will be polled to find out if they are receiving adequate technical information.

2. Data Collection Methods

- Structured
- Observation
- Case Study
- Sampling
- Unstructured
- Mail

Description

Data will be collected by direct observation, visiting demonstration sites and through personal survey. Experimental studies will be planned using sound statistical methodology.

V(A). Planned Program (Summary)**Program #5****1. Name of the Planned Program**

Small Farm, Value-Added Enterprises and Rural Families

2. Brief summary about Planned Program

The goal of the Small Farms, Value-Added Enterprises and Rural families at Florida A&M University is to enhance the social and economic well being of rural and small farm communities through research that facilitates policy decision-making, education and outreach. The planned research program in this area was developed in close consultation with the Cooperative Extension Program at the University. many of these areas overlap with extension and joint appointments with extension faculty have helped in addressing needs in this area. The planned program will implement studies in 13 north Florida counties where most of the small farms are located. Value-added enterprises such as niche crops, vegetables (peppers, tomatoes, melons, cucumbers, etc), exotic crops, small animal enterprises will be evaluated for their profitability and possible adoption by small farmers. Rural families in north Florida face many unique issues, including lack of resources, health care problems, nutrition, housing, transportation and finances. All these issues affect both the health and well-being of families, as well as the well-being of the communities in which they live. Research and extension will work together to address some of these issues.

3. Program existence : Intermediate (One to five years)

4. Program duration : Medium Term (One to five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management				30%
803	Sociological and Technological Change Affecting Individuals, Familie				30%
805	Community Institutions, Health, and Social Services				40%
	Total				100%

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Florida's rapid growth in the central and the southern part of the state has caused migration to and from small rural communities of north Florida. Some communities are facing a deterioration of wages, lost jobs and a growing income gap, when compared to urban areas and the national average. This results in a smaller work force, and less capacity for community-wide economic growth. Most of the small farms in FAMU's service area do not produce enough income to sustain families. Therefore, these small farms are now operated by part-time farmers. Also, the rural areas have a much higher population of older people and their needs are different, in terms of assistance programs. The priorities in this program are: increasing small farmers' income through value-added enterprises, assisting rural families/elderly in improving quality of their life and bringing them into the main stream America.

2. Scope of the Program

- In-State Research
- Integrated Research and Extension
- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Florida will continue to grow, population-wise, creating unique problems and challenges, which need to be addressed by the state's land-grant universities. The key to solving community problems is to focus on educating people about their options for the future so they will take local action to solve local problems. In north Florida, where FAMU is located, most of the small farms produce a mix of agricultural commodities and maintain some animals. Organic farming and exotic crops production is on the rise. FAMU has been instrumental in establishing two Farmer's Market (FAMU Cooperative Extension Program) in Tallahassee area aiding to the income of small farmers. It is assumed that small farmers, rural families and limited resource producers need assistance now and in the future to sustain their productivity and profitability.

2. Ultimate goal(s) of this Program

The ultimate goal of this planned program is to enhance the quality of life for rural families and enhance income opportunities for small and limited resource farmers in North Florida.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	0.0	2.0
2010	0.0	0.0	0.0	2.0
2011	0.0	0.0	0.0	2.0
2012	0.0	0.0	0.0	2.0
2013	0.0	0.0	0.0	2.0

V(F). Planned Program (Activity)**1. Activity for the Program**

The following activities will be undertaken during the implementation of the planned program: research and demonstration studies, field days, visitations to farmers' fields, experimental studies, training of students, publications of research results, workshops and conferences.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● Public Service Announcement

3. Description of targeted audience

The target audience for this planned program include: small / limited resource farmers, extension workers, rural residents and

families, community groups, vegetable growers, etc.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	250	250	100	100
2010	250	250	100	100
2011	300	300	100	100
2012	300	300	100	100
2013	300	300	100	100

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2009 :0 2010 :0 2011 : 1 2012 :0 2013 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2009	1	2	3
2010	1	2	3
2011	1	3	4
2012	1	3	4
2013	1	3	4

V(H). State Defined Outputs

1. Output Target

- Production practice options for reducing the over-reliance on chemicals; More efficient cultural practices; Increase in economic returns to small farmers; Number of families availing the program recommendations; New value-added ventures; Number of small farmers participating; Number of graduate and undergraduate trained.

2009 :50 2010 :50 2011 : 60 2012 :60 2013 :60

V(I). State Defined Outcome

O. No	Outcome Name
1	Adoption of profitable enterprises and practices; Improved quality of life for rural families; More efficient use of agricultural chemicals by producers; Increased economic returns for small farmers; Identification of new value-added enterprises; Well-trained graduate and undergraduate students.

Outcome #1**1. Outcome Target**

Adoption of profitable enterprises and practices; Improved quality of life for rural families; More efficient use of agricultural chemicals by producers; Increased economic returns for small farmers; Identification of new value-added enterprises; Well-trained graduate and undergraduate students.

2. Outcome Type : Change in Condition Outcome Measure

2009 :20

2010 : 25

2011 : 30

2012 :30

2013 : 30

3. Associated Institute Type(s)

- 1890 Research

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 - Community Institutions, Health, and Social Services

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Competing Programatic Challenges
- Public Policy changes
- Populations changes (immigration,new cultural groupings,etc.)

Description

Several external factors may affect the outcomes for this planned program. Small farms are more vulnerable than larger enterprises to many of the factors such as: higher input prices, insects/diseases, lack of market, bad weather conditions, low prices, and unavailability of labor. Programs on rural issues may be affected by state and federal regulations, reduced funding and changing needs of an aging population.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- Before-After (before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Case Study
- During (during program)
- Time series (multiple points before and after program)

Description

The evaluation studies for this planned program will be done in consultation with the Cooperative Extension Program. Both, before and after and during the program evaluations will be employed. Case studies will be compared when studying the needs of rural families. Yield and the quality of niche crops will be taken into consideration.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Case Study
- Telephone
- On-Site
- Structured

Description

The data collection will include: statistically designed experimental studies, observation and numerical data, quality scale and taste panels, survey data and analysis.